

Amendments to the Claims:

Following is a complete listing of the claims pending in the application, as amended:

Claims 1-51 (Cancelled).

52. (Previously presented) A method of producing a cell having a molecular switch for modulating gene expression, said method comprising:

(i) transforming said cell with a nucleic acid construct having a DNA response element which binds a transcriptional regulatory protein operably linked to a promoter, a non-native compound-binding sequence which is the same as, overlapping, or adjacent to said DNA response element for binding to a DNA binding compound, a transgene under the control of the promoter; and

(ii) exposing said transformed cell to a DNA binding compound, wherein binding of the DNA binding compound to said compound binding sequence is effective to inhibit binding of a transcriptional regulatory protein to the DNA response element, thereby derepressing or deactivating expression of the gene, where the transcriptional regulatory protein is a repressor or activator protein, respectively.

53. (Previously presented) The method of claim 52, comprising:

(iii) further transforming said cell with a second nucleic acid construct having a nucleic acid sequence encoding a transcriptional regulatory protein operably linked to a second promoter.

Claims 54-59 (Cancelled).

60. (New) A molecular switch, comprising:

(a) a first nucleic acid construct, having

(i) a DNA response element for a transcriptional regulatory protein, operably linked to a first promoter;

(ii) a non-native compound binding sequence which is the same as, overlapping, or adjacent to said DNA response element, for binding to a DNA binding compound;

(iii) a transgene under the control of said first promoter;

(b) a DNA binding compound; and

(c) a second nucleic acid construct, having the coding sequence for said transcriptional regulatory protein operably linked to a second promoter;

wherein said DNA binding compound, when bound to said binding sequence, is effective to modulate binding of said transcriptional regulatory protein to said DNA response element and wherein a first vector is including said first nucleic acid construct and a second vector is including said second nucleic acid construct.

61. (New) A molecular switch, comprising:

(a) a first nucleic acid construct, having

(i) a DNA response element for a transcriptional regulatory protein, operably linked to a first promoter;

(ii) a non-native compound binding sequence which is the same as, overlapping, or adjacent to said DNA response element, for binding to a DNA binding compound;

(iii) a transgene under the control of said first promoter; and

(b) a DNA binding compound;

wherein said DNA binding compound, when bound to said binding sequence, is effective to modulate binding of said transcriptional regulatory protein to said DNA response element and wherein said compound binding sequence has from about 8 to 20 nucleotides.

62. (New) A molecular switch, comprising:

(a) a first nucleic acid construct, having

(i) a DNA response element for a transcriptional regulatory protein, operably linked to a first promoter;

(ii) a non-native compound binding sequence which is the same as,

overlapping, or adjacent to said DNA response element, for binding to a DNA binding compound;

(iii) a transgene under the control of said first promoter; and

(b) a DNA binding compound;

wherein said DNA binding compound, when bound to said binding sequence, is effective to modulate binding of said transcriptional regulatory protein to said DNA response element and wherein said nucleic acid construct has from 1 to 12 compound binding sequences.

63. (New) A molecular switch, comprising:

(a) a first nucleic acid construct, having

(i) a DNA response element for a transcriptional regulatory protein, operably linked to a first promoter;

(ii) a non-native compound binding sequence which is the same as, overlapping, or adjacent to said DNA response element, for binding to a DNA binding compound;

(iii) a transgene under the control of said first promoter; and

(b) a DNA binding compound;

wherein said DNA binding compound, when bound to said binding sequence, is effective to modulate binding of said transcriptional regulatory protein to said DNA response element and wherein said nucleic acid construct has from 1 to 12 tandem repeated transcriptional regulatory protein DNA response elements.